	Application No.	Applicant(s)
Notice of Allowability	10/626,856	BRANTS ET AL.
	Examiner	Art Unit	
	KIMBERLY LOVEL	2167	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *the Appeal Brief filed on 2 February 2002*.

2. ☒ The allowed claim(s) is/are *1-7, 9-11, 13-15 and 37*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a) ☐ All   b) ☐ Some*   c) ☐ None   of the:

         1. ☐ Certified copies of the priority documents have been received.

         2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

         3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

     * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

     (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

         1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____ .

     (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

     Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____

4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application

6. ☒ Interview Summary (PTO-413), Paper No./Mail Date *20090508* .

7. ☒ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____ .

DETAILED ACTION

1.   This communication is in response to the Appeal Brief filed 2 February 2009.

2.   In view of the Appeal Brief filed on 2 February 2009, PROSECUTION IS

HEREBY REOPENED.

To avoid abandonment of the application, appellant must exercise one of the

following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply

under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed

by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and

appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth

in 37 CFR 41.20 have been increased since they were previously paid, then appellant

must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by

signing below:

/John R. Cottingham/

Supervisory Patent Examiner, Art Unit 2167

3.   Claims 1-7, 9-11, 13-15 and 37 are currently pending. As a result of the claims

filed 6 November 2008 and the Examiner's Amendment stated below, claims 1-7, 9-11,

13-15 and 37 (renumbered as 1-14) are allowed and claims 8, 12, 16-36, 38 and 39 are

cancelled.

Examiner Amendment

4.   Authorization for this examiner's amendment, listed below, was given in a

telephone interview with Mark Svat (Reg. No. 34,261) on 7-8 May 2009.

In the Claim:

Please amend claims 1, 13 and 14 as follows:

1. (Currently Amended) A computer-implemented method of detecting new

events comprising the steps of:

        determining at least one story characteristic based on an average story similarity

story characteristic and a same event-same source story characteristic;

        determining a source-identified story corpus, each story associated with at least

one event;

        determining a source-identified new story associated with at least one event;

        determining story-pairs based on the source-identified new-story and each story

in the source-identified story corpus;

        determining at least one inter-story similarity metric for the story-pairs; wherein

the inter-story similarity metrics are comprised of at least one story frequency model[[;]]

and at least one story characteristic frequency model combined using terms weights;

and wherein an event frequency is determined based on term t and <u>rule of interpretation</u>

(ROI) category *rmax* from the formula: $ef_{r\max}(t) = \dfrac{\max}{r \in R}(ef(r,t))$ $ef_{r\max}(t) = \max\limits_{r \in R}(ef(r,t))$.

wherein r is an ROI category, R is the set of all possible ROIs, $ef(rt)$ is the frequency of term t in ROI category r;

determining at least one adjustment to the inter-story similarity metrics based on at least one story characteristic; and

outputting a new story event indicator if the event associated with the new story is ~~similar~~ of a determined similarity or dissimilarity to the events associated with the source-identified story corpus based on the inter-similarity metrics and adjustments.

13. (Currently Amended) A computer-implemented method of detecting new events comprising the steps of:

determining at least one story characteristic based on an average story similarity story characteristic and a same event-same source story characteristic;

determining a source-identified story corpus, each story associated with at least one event;

determining a source-identified new story associated with at least one event;

determining story-pairs based on the source-identified new-story and each story in the source-identified story corpus;

determining at least one inter-story similarity metric for the story-pairs; wherein the inter-story similarity metrics are comprised of at least one story frequency model[[;]] and at least one story characteristic frequency model combined using terms weights;

and wherein an inverse event frequency is determined based on term t, and events e and $rmax$ in the set of <u>rule of interpretation (ROI)</u> categories from the formula:

$$IEF(t) = \log\left[\frac{N_{e,r\max}}{ef_{r\max}(t)}\right]$$ <u>wherein N_e rmax is the number of events in ROI max;</u>

determining at least one adjustment to the inter-story similarity metrics based on at least one story characteristic; and

outputting a new story event indicator if the event associated with the new story is ~~similar~~ <u>of a determined similarity or dissimilarity</u> to the events associated with the source-identified story corpus based on the inter-similarity metrics and adjustments.

14. (Currently Amended) A computer-implemented method of detecting new events comprising the steps of:

determining at least one story characteristic based on an average story similarity story characteristic and a same event-same source story characteristic;

determining a source-identified story corpus, each story associated with at least one event;

determining a source-identified new story associated with at least one event;

determining story-pairs based on the source-identified new-story and each story in the source-identified story corpus;

determining at least one inter-story similarity metric for the story-pairs; wherein the inter-story similarity metrics are comprised of at least one story frequency model[[;]] and at least one story characteristic frequency model combined using terms weights;

and wherein an inverse event frequency is determined based on term t, categories e, r

and rmax in the set of <u>rule of interpretation (ROI)</u> categories and P(r), the probability of

ROI r from the formula: $IEF'(t) = \sum_{r \in R} P(r) \log \left[\dfrac{N_{e,r}}{ef(r,t)} \right]$ <u>wherein r is an ROI category;</u>

determining at least one adjustment to the inter-story similarity metrics based on

at least one story characteristic; and

outputting a new story event indicator if the event associated with the new story

is ~~similar~~ <u>of a determined similarity or dissimilarity</u> to the events associated with the

source-identified story corpus based on the inter-similarity metrics and adjustments.

Reasons for Allowance

5.   The following is an examiner's statement of reasons for allowance:

In the Examiner's Non-Final Office Action dated 8 October 2008, the claims were

rejected under 35 USC 103 based primarily on the article "Topic Detection and Tracking

Pilot Study Final Report" by Allan et al; the article "Relevance Models for Topic

Detection and Tracking" by Lavrenko et al; and the article "Dynamic Stopwording for

Story Link Detection" by Brown.

The claimed invention is directed towards methods of new event detection.

The prior art of record, the article "Topic Detection and Tracking Pilot Study Final

Report" by Allan et al; the article "Relevance Models for Topic Detection and Tracking"

by Lavrenko et al; and the article "Dynamic Stopwording for Story Link Detection" by

Brown, do not show, teach or suggest the combined features of **determining at least**

one story characteristic based on an average story similarity story and a same event-same source story characteristic; wherein the inter-story similarity metrics are comprised of at least one story frequency model and at least one story characteristic frequency model combined using terms weights; and wherein an event frequency is determined based on term *t* and rule of interpretation (ROI) category *rmax* from the formula: $ef_{r\max}(t) = \max_{r \in R}(ef(r,t))$, wherein r is an ROI category, R is the set of all possible ROIs, $ef(rt)$ is the frequency of term t in ROI category r; determining at least one adjustment to the inter-story similarity metrics based on at least one story characteristic; and outputting a new story event indicator if the event associated with the new story is of a determined similarity or dissimilarity to the events associated with the source-identified story corpus based on the inter-similarity metrics and adjustments (in regards to claim 1); determining at least one story characteristic based on an average story similarity story and a same event-same source story characteristic; wherein the inter-story similarity metrics are comprised of at least one story frequency model and at least one story characteristic frequency model combined using terms weights; and wherein an inverse event frequency is determined based on term *t*, and events *e* and *rmax* in the set of rule of interpretation (ROI) categories from the formula: $IEF(t) = \log\left[\dfrac{N_{e,r\max}}{ef_{r\max}(t)}\right]$ wherein N_e rmax is the number of events in ROI max; determining at least one adjustment to the inter-story similarity metrics based on at least one story characteristic; and outputting a new story event

indicator if the event associated with the new story is of a determined similarity or dissimilarity to the events associated with the source-identified story corpus based on the inter-similarity metrics and adjustments in combination with the other claimed features (in regards to claim 13); and **determining at least one story characteristic based on an average story similarity story characteristic and a same event-same source story characteristic; wherein the inter-story similarity metrics are comprised of at least one story frequency model and at least one story characteristic frequency model combined using terms weights; and wherein an inverse event frequency is determined based on term t, categories e, r and rmax in the set of rule of interpretation (ROI) categories and P(r), the probability of ROI r from the formula:** $IEF^{'}(t) = \sum_{r \in R} P(r) \log \left[\dfrac{N_{e,r}}{ef(r,t)} \right]$ **wherein r is an ROI category; determining at least one adjustment to the inter-story similarity metrics based on at least one story characteristic; and outputting a new story event indicator if the event associated with the new story is of a determined similarity or dissimilarity to the events associated with the source-identified story corpus based on the inter-similarity metrics and adjustments** (in regards to claim 14), in combination with the other claimed elements.

While the prior art of record teaches the concept of first story detection utilizing similarity metrics, the combination of the art fails to teach the inter-story similarity metrics consisting of a model combined using term weights in combination with each of the formulas disclosed in claims 1, 13 and 14 which incorporate rule of interpretation

categories and then adjusting the metrics utilizing story characteristics which are based

on an average story similarity story characteristic and a same event-same source story

characteristic.

An updated search for prior art on the EAST database and on domains (NPL-

Google, IEEE) has been conducted. The prior art searched and investigated in the

database and domains does not fairly teach or suggest the teaching of the claimed

subject matter as described above and reflected by the combined elements in

independent claims 1, 13 and 14. Dependent claims 2-7, 9-11, 15 and 37 are indicated

as being allowable for the same reasons stated above in regards to the independent

claims.

6.   Any comments considered necessary by applicant must be submitted no later

than the payment of the issue fee and, to avoid processing delays, should preferably

accompany the issue fee. Such submissions should be clearly labeled "Comments on

Statement of Reasons for Allowance."

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KIMBERLY LOVEL whose telephone number is (571)272-2750. The examiner can normally be reached on 8:00 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Cottingham can be reached on (571) 272-7079. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kuen S Lu/   /Kimberly Lovel/
Primary Examiner, Art Unit 2156   Examiner
                                                     Art Unit 2167

8 May 2009
/KL/

/John R. Cottingham/
Supervisory Patent Examiner, Art Unit 2167